Correction to "Toward improved identifiability of hydrologic model parameters: The information content of experimental data"

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INDEX TERMS: 1860 Hydrology: Runoff and Streamflow; 1875 Hydrology: Unsaturated zone; 9900 Corrections

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[1] In the paper "Toward improved identifiability of hydrologic model parameters: The information content of experimental data" by Jasper A. Vrugt, Willem Bouten, Hoshin V. Gupta, and Soroosh Sorooshian (*Water Resources Research*, *38*(12), 1312, doi:10.1029/2001WR001118, 2002), several corrections were not made to the final version of the paper.

1. Throughout the paper, the variables n, l, and p should be italicized.

2. In paragraph [14], in the following sentence "large t" was published incorrectly as "large n": This algorithm is a Markov Chain Monte Carlo sampler generating a sequence of parameter sets, $\{\beta^{(0)}, \beta^{(1)}, \ldots, \beta^{(t)}\}$, that converges to the stationary distribution, $p(\beta|\mathbf{D})$ for large t [*Gelman et al.*, 1997].

3. Also in paragraph [14], in the following sentence the *p* should have been deleted so the correct wording of the sentence is as follows: A heuristic strategy based on running multiple sequences generated in parallel was used to test whether convergence of the Metropolis sampler to a stationary posterior target distribution has been achieved [*Gelman and Rubin*, 1992].

4. In paragraph [25], the second sentence should read as follows: Starting at $\psi = -10^5$ m, two subsequent retention observations were omitted at each step from the original set of corrupted water content measurements, resulting in 25 data sets with varying numbers of observations {50, 48, 46, ..., 2} and thus varying experimental pressure head range before arriving at full saturation.

5. In the next to last sentence of paragraph [25], Figure 5a should read Figure 5b.

6. In paragraph [38], the following sentences should be corrected as follows:After processing the first 5 most informative streamflow measurements with the PIMLI algorithm, the HPD region narrows down rather quickly for most of the parameters. The characteristic jumping behavior of the HPD region throughout the feasible parameter space is caused by the presence of structural inadequacies in the HYMOD model and errors in the hydrological data. After recursively assimilating a sufficient amount of streamflow measurements with the PIMLI algorithm (10), the HPD region of the parameters finally settles down in the parameter space. The results in Figure 9 illustrate that the HYMOD model parameters are reasonably well determined by calibration to streamflow data. Note also the excellent correspondence between the most optimal parameter values identified using a conventional batch calibration approach (SCE-UA) for the entire 1-year period and the location of the HPD region derived with the PIMLI algorithm after processing only the 20 most informative streamflow measurements.

7. The following figure captions should be corrected as follows:

Figure 3. (a) Uncorrupted error case: location of the four most informative water retention measurements along the curve identified using the PIMLI algorithm. (b) Behavior of sensitivity of water content to the water retention parameters θ_s, θ_r, α, and n over the prior defined range of pressure head values for the sandy soil in the VG model.

Figure 5. (a) Corrupted error case: location of the four most informative water retention measurements along the curve identified using the PIMLI algorithm. (b) Normalized range of each of the retention parameters as function of the experimental range of pressure heads. For more explanation, see text.

Figure 6. Synthetic outflow experiment: location of the six most informative outflow observations for the various model parameters within the different measurement sets.

8. The Vrugt and Bouten, in press, reference should be updated to Vrugt, J. A., and W. Bouten, Validity of first order approximations for assessing parameter uncertainty in soil hydrological models, *Soil Sci. Soc. Am. J.*, *66*, 1740–1751, 2002.

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